REMARKS:

Status Of Claims

Claims 1-17 were previously in the Application. Claims 16 and 17 have been amended. Thus, claims 1-17 are currently pending in the application with claims 1, 9, and 11 being independent.

Office Action

In the office action, the Examiner rejected claim 1 under 35 U.S.C 112, second paragraph, as being indefinite. Specifically, the Examiner questioned the phrase "receiving a self generated broadcast signal". Applicant directs the Examiner's attention to ¶¶ 19-21, which state:

> At step 10, the bit detection threshold adjustment process receives a self-generated broadcast signal, such as an "ownship" broadcast message being transmitted by an aircraft or any other vehicle. By way of example, in an ADS-B service, each equipped aircraft broadcasts a message that includes respective state vector information, such as position and velocity, at a typical interval of once per second. As is known by those of ordinary skill in the art, the term "ownship broadcast messages" (i.e., self-generated broadcast signals) refers to the signal that is transmitted by an aircraft and the term "off air broadcast messages" refers to signals transmitted by other entities in the communication system that are received by the "ownship" aircraft.
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> In order to monitor or receive the "ownship" transmission messages at the receiver bit detection circuit, a feedback path will typically need to be provided for within the transmission/receiver unit of the communication system. In one embodiment of the invention, a half-duplex radio modem is used as the transmission/receiver unit and a feedback path may be implemented within the modem to siphon the transmission signal from the transmission path to the receiver path. Various means of supplying a feedback signal to the receiver may be provided for and all are within the scope of the invention herein disclosed. By way of example, FIG. 2, which

> will be discussed at length later in the detailed description, illustrates two embodiments for providing a feedback path in a communication link, such as a modem.
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> Additionally, for the bit detection threshold adjustment process to receive or monitor a self-generated broadcast signal it is necessary for the receiver detection circuitry to remain active (i.e., armed) while the transmission of the "ownship" message occurs and to be de-activated (i.e., unarmed) when the transmission of the "ownship" message is complete. This insures that the bit detection adjustment process is limited to "ownship" broadcast messages and is not undertaken when the receiver receives off-air signals (i.e., broadcast messages from other entities).

Thus, the present invention generates a signal, which is to be broadcast, hence the term "self generated broadcast signal". The present invention, as claimed in claim 1, may be configured to leave "receiver detection circuitry" active in order to receive that "self generated broadcast signal". Applicant, therefore, does not believe correction is required.

The Examiner also rejected claims 1-4, 6, 11, 14, 15, and 17 under 35 U.S.C. 103(a) as being anticipated by Lu, U.S. Patent No. 5,896,422, in view of Lomp, U.S. Patent No. 6,381,264. The Examiner also rejected claims 9 and 16 under 35 U.S.C. 103(a) as being unpatentable over Lu in view of Schrader, U.S. Patent No. 3,750,168, and Lomp. The Examiner also rejected claims 5 and 13 under 35 U.S.C. 103(a) as being unpatentable over Lu in view of Lomp in further view of Holloway, U.S. Patent No. 6,747,996. The Examiner also rejected claims 7 and 8 under 35 U.S.C. 103(a) as being unpatentable over Lu in view of Ueunten, U.S. Patent No. 5,412,309. The Examiner also rejected claim 10 under 35 U.S.C. 103(a) as being unpatentable over Lu in view of Schrader and Lomp in further view of Holloway. The Examiner also rejected claim 12

under 35 U.S.C. 103(a) as being unpatentable over Lu in view of McGibney, U.S. Patent No. 6,594,273. Applicant respectfully submits that the currently pending claims distinguish the present invention from Lu, Lomp, Schrader, Holloway, Ueunten, McGibney, and the other prior art references of record, taken alone or in combination with each other.

Specifically, claim 1 recites "determining a median value of the self-generated broadcast signal". More specifically, claim 15 recites "wherein the median value is a true median rather than a weighed average". As previously argued, it is important to note that the present invention uses a true median value. While averaging may be used in some circumstances, the end result is still a true median value as, in those circumstances, the limitations of averaging have been factored out.

In contrast, as previously argued, Lu's threshold is calculated as an average of averages of averages of samples that fit a certain criteria. In fact, Lu only averages numerous values of +1 and –1. Lu calculates variable results only because Lu uses weighted averaging. For example, in column 9, Lu calculates two different thresholds. First, in lines 12-29, Lu calculates a threshold of +0.0375 volts. Then, in lines 30-50, Lu calculates a new threshold of –0.0125 volts, just by including an additional –1 average amplitude and thereby more negatively weighting the threshold producing average. In fact, Lu never determines a true "median value", as claimed in claims 1 and 15. Of course, a true median value of Lu's +1 and –1 values would always yield a true median of Zero, so such an exercise would be trivial.

The Examiner seeks to cure this shortcoming by citing Lomp, who does calculate

a median. However, modifying the system of Lu to calculate a median, rather than the disclosed weighted average would render Lu unsuitable for its intended purpose, and is therefore an improper modification. Thus, any rejection based on such a modification of Lu is improper and simply cannot be sustained.

Obviousness, it will be appreciated, can be a problematic basis for rejection because the Examiner, in deciding that a feature is obvious, has benefit of the Applicant's disclosure as a blueprint and guide, whereas one with ordinary skill in the art would have no such guide, in which light even an exceedingly complex solution may seem easy or obvious. Furthermore, once an obviousness rejection has been made, the Applicant is in the exceedingly difficult position of having to prove a negative proposition (i.e., non-obviousness) in order to overcome the rejection. For these reasons, MPEP § 2142 places upon the Examiner the initial burden of establishing a *prima facie* case of obviousness. If the Examiner fails to establish the requisite *prima facie* case, the rejection is improper and will be overturned. *In re Rijckaert*, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). Only if the Examiner's burden is met does the burden shift to the applicant to provide evidence to refute the rejection.

Specifically, the Examiner must satisfy three criteria in order to establish the requisite *prima facie* case of obviousness: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine their teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or

combination of references) must teach or suggest all the claim limitations. MPEP §706.02(j), citing *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991).

In meeting this initial burden, as stated in MPEP §2143.03, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

Furthermore, "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch,* 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992); *see also In re Gordon*, 221 USPQ2d 1125, 1127 (Fed. Cir. 1984). Additionally, "***if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose***, then there is no suggestion or motivation to make the proposed modification", emphasis added. MPEP §2143.01.

In the present case, as discussed above, the Examiner's proposed modification of Lu would render Lu unsatisfactory for its intended purpose. For example, the very peaks Lu uses are always +1 and –1 and a true median of these peaks would always be zero, and would therefore never change. However, Lu begins with the proposition that the optimal bit determination threshold is not fixed at zero. *See* column 1. Rather Lu assumes that the optimal bit determination threshold does change. Otherwise, there would be no utility for a "METHOD AND APPARATUS FOR DETERMINING THE DETECTION

THRESHOLD FOR AN INFORMATION SIGNAL", as Lu titles his invention. Thus, any rejection based on such a modification of Lu is improper and simply cannot be sustained.

Finally, neither Lu nor Lomp performs any of calculations on a "self generated broadcast signal", as claimed in claim 1. Rather, both Lu and Lomb work exclusively with received signals that are generated remotely. As a result, no proper combination of Lu and/or Lomb discloses, suggests, or makes obvious "determining a median value of the self-generated broadcast signal", as claimed in claim 1, or "wherein the median value is a true median rather than a weighed average", as claimed in claim 15.

Similarly, claim 9 recites "receiving an analog ownship broadcast signal", "digitizing the analog ownship broadcast signal", "detecting a positive peak value and a negative frequency peak value from the digitized ownship signal" and "calculating a peak-to-peak deviation for the digitized ownship signal based on the positive and negative frequency peak values". In contrast, as discussed above and acknowledged by the Examiner, neither Lu nor Lomp discloses "receiving an analog ownship broadcast signal". However, the Examiner mistakenly asserts that feature to be shown by Schrader. In fact, Schrader teaches filtering out his ownship signal. Specifically, as stated in column 6, lines 12-16, "[i]t is desirable to locate the filter as close as possible to the down converter in order that succeeding stages of the transponder are not overdriven by the ownship transmitter signal". In other words, Schrader specifically filters out any interference his ownship transmitter signal may have upon his received signal. Furthermore, since Schrader filters out his ownship signal, he certainly cannot suggest "digitizing the analog ownship

broadcast signal" much less the other claimed functions. Thus, Schrader explicitly teaches away from "receiving an analog ownship broadcast signal" and "digitizing the analog ownship broadcast signal", as claimed in claim 9. As a result, no proper combination of Lu, Schrader, and/or Lomp discloses, suggests, or makes obvious "receiving an analog ownship broadcast signal", "digitizing the analog ownship broadcast signal", "detecting a positive peak value and a negative frequency peak value from the digitized ownship signal" and "calculating a peak-to-peak deviation for the digitized ownship signal based on the positive and negative frequency peak values", as claimed in claim 9.

Claim 11 recites "a positive peak detector [that] determines a positive peak value", "a negative frequency peak detector [that] determines a negative frequency peak value", and "a calculation task unit ... that calculates a peak-to-peak deviation to formulate a bit detection threshold value". As acknowledged by the Examiner, Lu does not detect peaks. The Examiner seeks to cure this shortcoming by citing Lomp, who does calculate a median. The Examiner infers that Lump must therefore detect peaks. While such inference appears reasonable, Applicant points out that the word "peak" does not appear in Lomp. Furthermore, Lomp simply does not calculate the claimed "peak-to-peak deviation to formulate a bit detection threshold value". As a result, the proposed combination of Lu and Lomb fails to disclose, suggest, or make obvious "a positive peak detector [that] determines a positive peak value", "a negative frequency peak detector [that] determines a negative frequency peak value", and "a calculation task unit ... that calculates a peak-to-peak deviation to formulate a bit detection threshold value", as claimed in claim

11.

Claims 16 and 17 each now recite "wherein the bit detection threshold is adjusted based at least in part on a true median rather than a weighed average". As discussed above, Lu simply cannot be modified to base his bit detection threshold on a true median, as such a modification would render Lu unsatisfactory for its intended purpose. As a result, no proper combination of Lu, Lomp, and/or Schrader discloses, suggests, or makes obvious "wherein the bit detection threshold is adjusted based at least in part on a true median rather than a weighed average", as claimed in claims 16 and 17.

The remaining claims all depend directly or indirectly from independent claims 1, 9, or 11, and are therefore also allowable.

Any additional fee which is due in connection with this amendment should be applied against our Deposit Account No. 501-791. In view of the foregoing, a Notice of Allowance appears to be in order and such is courteously solicited.

Respectfully submitted,

By: _____

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